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| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/713,332 | HOOPER ET AL. | |
| | Examiner | Art Unit | |
| | Qing Chen | 2191 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on September 25, 2007.
2. ☒ The allowed claim(s) is/are 1-3, 5, 6, 8, and 10-25 are allowed, renumbered as 1-22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
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DETAILED ACTION

1. This Office action is in response to the amendment filed on September 25, 2007.
2. **Claims 1-3, 5, 6, 8, and 10-25** are pending.
3. **Claims 1, 5, 6, 8, 10, 15, and 23** have been amended.
4. **Claims 4, 7, 9, 26, and 27** have been cancelled.
5. **Claims 1-3, 5, 6, 8, and 10-25** are allowed, renumbered as 1-22.
6. The objections to the drawings are withdrawn in view of Applicant's amendments to the drawings.
7. The objections to the specification are withdrawn in view of Applicant's amendments to the specification.

EXAMINER'S AMENDMENT

8. An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this Examiner's amendment was given in a telephone interview with Anthony T. Moosey (Reg. No. 55,773) on October 12, 2007.

The application has been amended as follows:

In the Claims:

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Please cancel Claims 4 and 9 and amend Claims 1, 5, 10, and 15 as follows:

1. (Currently Amended) A method comprising:

receiving a user selection of a first instruction from a list of instructions that executed during a processor simulation; and

tracing an operand in the first instruction directly to a use of the operand in a second instruction in the list of instructions by following operand dependencies between such first and second instructions,

wherein tracing comprises using attributes of the first instruction to find the second instruction and using a program counter value to look up attributes of the first instruction in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands and to determine for each register type a physical address.

Claim 4 (Cancelled)

5. (Currently Amended) The method of claim [[4]] 1 wherein receiving comprises:
receiving a selected cycle corresponding to the first instruction.

Claim 9 (Cancelled)

10. (Currently Amended) The method of claim [[9]] 1 wherein determining the physical address comprises determining whether each register type is a non-I/O register or an I/O register.

15. (Currently Amended) The method of claim [[9]] 6 wherein determining the program counter value comprises looking up the program counter value in a program counter history that records state change events, which are detected during simulation, with associated program counter values for each cycle in which such state change events occurred.

-- END OF AMENDMENT --

Reasons for Allowance

9. The following is an Examiner's statement of reasons for allowance:

The cited prior art taken alone or in combination fail to teach, in combination with the other claimed limitations, receiving a user selection of a first instruction from a list of instructions that executed during a processor simulation; and wherein tracing comprises using a program counter value to look up attributes of the first instruction in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands and to determine for each register type a physical address as recited in independent Claim 1; and further fail to teach receiving a user selection of a first instruction from a list of instructions that executed during a processor simulation; and using a program counter value to look up the attributes in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such

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instruction type for operands and to determine for each type of register a physical address as recited in independent Claim 20; and further fail to teach wherein executable instructions to trace comprises executable instructions to use a program counter value to look up attributes in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands and to determine for each type of register a physical address as recited in independent Claim 23.

The closest cited prior art, US 5,974,538 (hereinafter Wilmot), teaches a method for forwarding operands directly between instructions operates in a computer central processing unit. However, Wilmot fails to teach receiving a user selection of a first instruction from a list of instructions that executed during a processor simulation; and wherein tracing comprises using a program counter value to look up attributes of the first instruction in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands and to determine for each register type a physical address as recited in independent Claim 1; and further fails to teach receiving a user selection of a first instruction from a list of instructions that executed during a processor simulation; and using a program counter value to look up the attributes in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands and to determine for each type of register a physical address as recited in independent Claim 20; and further fails to teach wherein executable instructions to trace comprises executable instructions to use a program counter value to look up attributes in an instruction operand map that provides attributes of each instruction, including instruction type

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and type of registers used by such instruction type for operands and to determine for each type of register a physical address as recited in independent Claim 23.

Any comments considered necessary by Applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QC / RC
October 12, 2007



WEI ZHEN
SUPERVISORY PATENT EXAMINER